

Merritt Parkway, Lake Avenue Bridge
Spanning the Merritt Parkway at the 4.71 mile mark
Greenwich
Fairfield County
Connecticut

HAER No. CT-69

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
U.S. Department of the Interior
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HISTORIC AMERICAN ENGINEERING RECORD

Merritt Parkway, Lake Avenue Bridge

HAER No. CT-69

Location: Spanning the Merritt Parkway at the 4.71 mile mark in Greenwich, Fairfield County, Connecticut at exit 29
UTM: 18.613440.4550030
Quad: Glenville, Connecticut

Construction Date: 1940

Engineer: Connecticut Highway Department

Architect: George L. Dunkelberger, of the Connecticut Highway Department, acted as head architect for all Merritt Parkway bridges.

Contractor: Louis J. Bacco Construction Company
Stamford, Connecticut

Present Owner: Connecticut Department of Transportation
Wethersfield, Connecticut

Present Use: Used by traffic on Lake Avenue to cross the Merritt Parkway

Significance: The bridges of the Merritt Parkway were predominately inspired by the Art Deco and Art Moderne architectural styles of the 1930s. Experimental forming techniques were employed to create the ornamental characteristics of the bridges. This, combined with the philosophy of incorporating architecture into bridge design and the individuality of each structure, makes them distinctive.

Historians: Todd Thibodeau, HABS/HAER Historian
Corinne Smith, HAER Engineer
August 1992

For more detailed information on the Merritt Parkway, refer to the Merritt Parkway History Report, HAER No. CT-63.

LOCAL HISTORY

In July 1640, Daniel Patrick and Robert Feake, as agents of the New Haven Colony, purchased all lands between the Assmick and Potommuck brooks from local Indians. To protect their settlement Patrick and Feake signed allegiance to the Dutch at New Amsterdam, in 1642. Two years later, the Dutch raised a 130-man army and defeated the Petuquapean Indians at the site of the present village of Cos Cob in Greenwich.¹

In 1650, a treaty was signed that defined the boundary line between Connecticut and New Amsterdam, removing Greenwich from Dutch control. Six years later, Greenwich again came under the jurisdiction of the New Haven Colony and started to prosper. In the next century, farmers settled throughout the almost fifty square miles of Greenwich. By 1756, there were nine districts in the town: Greenwich, Old Town, Horseneck, Cos Cob, North Street, Pecksland, Round Hill, Quaker Ridge, Stanwich, and Glenville. Trade with New York City prospered as ports developed at Cos Cob and the mouth of the Mianus River. The shoe-making industry developed at Banksville and Stanwich.²

With the arrival of the railroad in 1848, Greenwich commenced to change. The train reduced the time required to get to New York City. The town flourished as more and more New Yorkers traveled to Connecticut, seeking a haven from the noise and pollution of the city. By the 1920s, Greenwich was a well-established commuter suburb.³

¹"Development of Old Greenwich." Greenwich Press, 17 October 1935, p. 27.

²William E. Finch, "Greenwich--The History of a Border Town," (Manuscript, Greenwich Public Library Vertical File), 1-2.

³Finch, 6.

As farms gave way to residential homes, traffic continued to increase on the Post Road/U.S. Route 1. Local residents soon sought an alternative to the dangerous old highway. When Commissioner Macdonald suggested building an alternative road, Greenwich's residents quickly adhered to the idea. But conflicts developed as it came time to determine a specific route.

Originally, eight different plans were put forth. This eventually became a contest between two routes. Macdonald wanted a northern route going through Round Hill, North Street, and Stanwich (this became known as the Greenwich Loop). Local residents, including Highway Superintendent P. L. Minor, wanted a more southerly route through Pecksland. They felt this route would be more convenient, less expensive to build and necessary in the near future. Furthermore, local leaders preferred destroying the lower valued properties along the Pecksland route than disrupting wealthy estates to the north. Macdonald threatened to start construction at the east end of the parkway to gain support for his plan. With this obstacle out of the way, work began at the New York state line on June 1, 1934.⁴

BRIDGE CONSTRUCTION HISTORY

Traversing the region between the town of Greenwich and the New York state line, Lake Avenue was a link between agricultural regions to the north and the market at Greenwich. The Lake Avenue intersection with the Merritt Parkway was originally designed to be an at grade crossing.

⁴"Macdonald Sees No Road Solution," Greenwich Press, 10 September 1931, p. 1.

"Highway Superintendent Minor Proposes Southern Route," Greenwich Press, 10 March 1932, p. 1.

"Proposed Routes For the Merritt Highway," Greenwich Press, 10 March 1932, p. 8.

"Route Goes Through Round Hill, Residents Upset," Greenwich Press, 24 March 1932, p. 1.

"400 Hear Cross and Macdonald Discuss Highway," Greenwich Press, 16 November 1933, p. 1.

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After the Old Mill Road crossing was closed, traffic was rerouted along a parallel road to Lake Avenue. The state offered to build an underpass to relieve congestion. The Greenwich Press reported, "Agitation for the improvement began last year, when the state offered to build the bridge carrying Lake Avenue over the parkway, if the town would eliminate all grade crossings. It was finally agreed at a town meeting."⁵

The John Arborio Construction Company of Poughkeepsie, NY, received the contract to grade the Merritt Parkway from Round Hill Road to Taconic Road, in Greenwich (ConnDot project #180-14). While the Lake Avenue Bridge is located within this section of the Merritt, the grade separation and bridge contract went to the Louis J. Bacco Construction Company of Stamford, CT (ConnDot project #180-118).⁶ The bridge cost \$49,635 and was under construction from November 20, 1939 to July 17 1940. Steel fabrication for the structure was done by the American Bridge Company. The paving work for this region of the Merritt extended from Round Hill Road to Taconic Road. This contract was awarded to the A. I. Savin Company of East Hartford, CT (ConnDot project #180-91). In 1956, due to an increase in traffic, on and off ramps were added to the Lake Avenue Bridge. In 1989, all loose mortar was replaced and the iron work was rehabilitated and painted blue (ConnDot project #173-107).⁷

⁵"Overpass at Lake Avenue is Nearing Completion," Greenwich Press, 18 May 1940, p. 1.

⁶Contract Card File, Map File and Engineering Records Department, Connecticut Department of Transportation, Wethersfield, CT.

⁷Lake Avenue Bridge, DOT #696; Bridge Maintenance File, Engineering Department, Connecticut Department of Transportation, Newington, CT.

BRIDGE DESCRIPTION

The Lake Avenue Bridge is a double-span deck bridge comprising four steel rigid frames with two equal spans of 50'. Parallel wing walls, 45' and 40' long, form the approach for the underpass. Spaced 10'-3" on center, the frames support a 9-1/2"- thick reinforced-concrete slab. The Merritt Parkway travels under the bridge at a slope and a skew of 80-55', with two clear roadways of 30' and a 30' wide median.

The rigid frame design allows the engineer to decrease the structural material at the center of the span, thus forming an arched opening. (See the Merritt Parkway History Report, HAER No. CT-63, for a more detailed description of the rigid frame.) The intrados of each span rises 2'-6" from the springline to the crown. The extrados rises 6" from the outer knee to the crown and remains horizontal to the interior leg. The frame thickness at the crown is 21". The outer knees have sharp outer and inner corners. The inside face of each outer leg remains vertical for a height of 11', while the outside face slopes to thicken the leg from 2' at the bottom to 3'-9" at the knee. The center legs are 3' deep with a slight taper at the base. The steel frames are made from 21" deep wide-flange sections, split and bent to weld a plate for a deeper web where needed. All connections are welded. Channel sections serve as cross braces for adjacent frames. Portal bracing between adjacent legs of different frames forms arched openings. Each leg bears on thick steel plates on reinforced-concrete footings.⁸ Cyclopean concrete, large rocks placed in freshly-poured concrete, acts as a sub-foundation where the soil conditions are questionable.

The detailing of the Lake Avenue Bridge is of an eclectic design. Random ashlar masonry is embedded in and anchored to the reinforced-concrete wing walls. The steel rigid frames are

⁸The construction drawings show the legs pinned to cast iron shoes at the footings, but the bridge was not built that way.

completely exposed and serve as the framework for the malleable cast-iron grilles and panels.

Malleable cast iron is a white cast iron that has been heated for a period of time to relieve internal stresses produced during shaping. The grapevine grilles on the legs were cast in a Certrock pattern, a material similar to plaster of paris, for strength and hardness after casting.⁹ The grilles are bolted to ornamental brackets, also made from malleable cast iron, which are welded to the rigid frames. The urn panels above the grilles are connected to the pavement slab and the railing. The grapevine grilles below the railing are bolted to the pavement slab also. The wrought iron railing and posts are decorated with rosettes that act as washers for bolts.

The steel frames were painted with a red lead and oil paint in the shop before delivery to the site. Two photographs, probably taken in the late 1930s or 1940s, show different paint schemes. In one, the steel frames and metal ornaments are painted one dark color, and the urns and scrolls in the grilles are painted a light color. In the other, the frames, urns, scrolls, and railings are painted a medium-tone color, and the grilles on the legs and under the railing are a shade lighter. The bridge was painted green in the 1970s and is presently a bright blue throughout.

BIBLIOGRAPHY

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Finch, William E. "Greenwich--The History of a Border Town." Manuscript, Greenwich Public Library Vertical File.

⁹George L. Dunkelberger, "Highway Architecture," Connecticut Society of Civil Engineers Annual 12 (1942): 129.

Greenwich Press. 1931-1935.

-----. Contract Card File. Map File and Engineering Department, Connecticut Department of Transportation, Wethersfield, CT. This includes construction drawings, copies of which are in the HAER field records.

-----. Bridge Maintenance File. Engineering Department, Connecticut Department of Transportation, Newington, CT.

PROJECT INFORMATION

This recording project was undertaken by the Historic American Buildings Survey and the Historic American Engineering Record (HABS/HAER) Division of the National Park Service, Robert J. Kapsch, Chief. The Merritt Parkway recording project was sponsored and funded by the Connecticut Department of Transportation (ConnDot) and the Federal Highway Administration.

The fieldwork, measured drawings, historical reports and photographs were prepared under the general direction of Eric N. DeLony, HAER Chief, and Sara Amy Leach, HABS Historian.

The recording team consisted of Jacqueline A. Salame (Columbia University), architect and field supervisor; Mary Elizabeth Clark (Pratt Institute) and B. Devon Perkins (Yale University), architectural technicians; Joanne McAllister-Hewlings (US/ICOMOS-Great Britain, University of Sheffield), landscape architect; Corinne Smith (Cornell University), engineer; Gabrielle M. Esperdy (City University of New York) and Todd Thibodeau (Arizona State University), historians; and Jet Lowe, HAER photographer.